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XXXVI. *An Account of an inverted Iris, observed on the Grass in September, and another in October, 1751, by Philip Carteret Webb Esq; F. R. S.*

Read Octob 24.

1751.

**O**N the 24 September 1751, about ten in the morning, I observed a solar iris on a grass lawn, near my house, at Busbridge in Surry. The morning was fair and clear, and the grass of the lawn was the night before almost cover'd with webs resembling those of spiders, which many persons esteem the forerunners of fair weather; and there had fallen in the night a large dew, with which the webs and the grass were thoroughly wetted.

The arch or bow appeared inverted, the point *A* being distant about 24 inches from the point of my foot; and where-ever I moved on the lawn, it seemed to move at that distance before me. The lawn, on which I observed this appearance, is a hanging level, which drops about 6 feet in 100 from *A* towards *E*. It extended itself to the end of the lawn, the grass of which was short, and it was not visible on the surface of the adjoining water, or grass fields.

It was about two feet wide, and the colours were vivid and distinct.

Not having seen any thing of this kind before, nor recollecting to have read a description of an iris of this sort, I upon the spot took the dimensions of it expressed in the annexed Fig. 1. in which the distance from

*A* to *B* was = 26 feet

*A* to *C* = 21 feet

*B* to *C* = 18 feet 6 inches

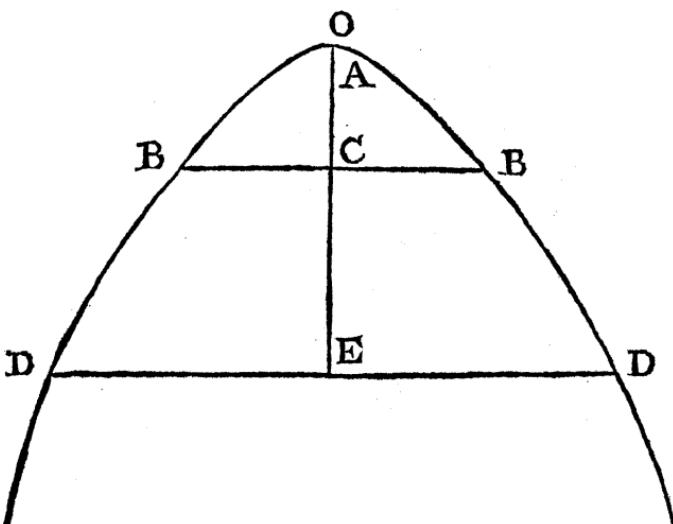
*E* to *C* = 28 feet

*E* to *D* = 40 feet

*B* to *D* = 34 feet.

The measures from *A* to *B* and *B* to *D* are something less than the truth, being the measure of a string strained in a strait line from *A* to *B*, and from *B* to *D*, and not of the curve line *ABD*.

Fig. 1.



*O*, the spectator's foot with his back to the sun, looking toward *E*, distant about 2 feet from *A*.

I i

On

ON Thursday the 3 October 1751, at 30<sup>1</sup> after 9 in the forenoon, I observed about the same spot a like iris. It was a very fair morning: there had fallen a large dew in the night, and the lawn was then, and the night before, webbed over as it was the 23 September.

The dimensions of this last iris expressed in the annexed Fig. N<sup>o</sup> 2, were taken with more accuracy than the former. I measured it only to *G*, but it was visible much farther than the whole extent of the lawn.

In Fig. 2. the distance from

*A* to *G* was = 54 feet 2 $\frac{1}{2}$  inches

*A* to *C* = 2 feet 3 $\frac{1}{2}$  inches

*A* to *B* = 4 feet 6 inches

*C* to *B* = 4 feet

*D* to *H* = 16 feet

*H* to *F* = 22 feet 7 inches

*E* to *F* = 12 feet 7 inches

*H* to *K* = 37 feet

*K* to *G* = 42 feet 10 inches

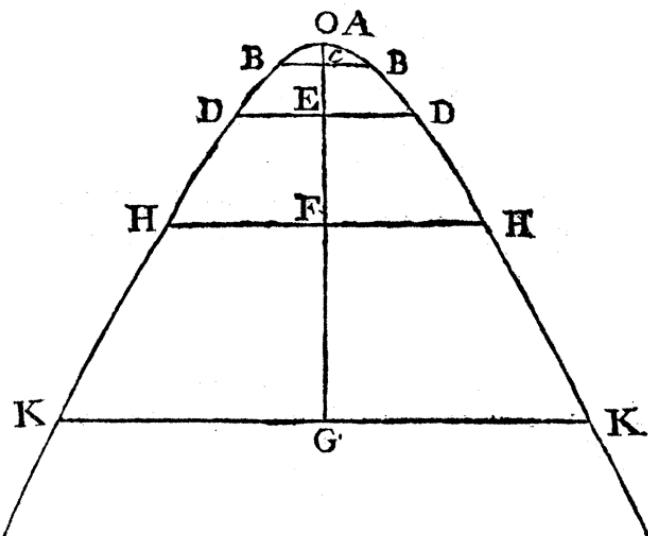
*G* to *F* = 30 feet 10 inches

*B* to *D* = 16 feet 8 inches

*D* to *E* = 12 feet 9 inches

*E* to *C* = 8 feet 6 inches

Fig. 2.



The first, if not the only author, who, I recollect, mentions this kind of iris, is Rohault, *Physica, pars 3. cap. 17. de arcu cœlesti, sect. 34.* His account is in the annexed note (a).

I i 2

Remark.

(a) Neque silentio prætereunda est illa notatu dignissima observatio, quod cum hactenus aquæ guttas tanquam in aere cadentes, & per ea loca, ubi sitæ esse debent, quo colores exhibere possint, ex ordine transeuntes consideraverimus, fingi quoque potest illas in certis locis fixas esse, ubi etiamnum tantum non rotundæ sint. Utique vir eruditus matutino quodam tempore in aggere deambulans, ad alteram manum in prati latius patentis herba conspicatus est arcum, qui, prout ipse gradum proferebat, locum mutare videbatur; id quod magnam ei admirationem movit, maxime quod cœlum undique serenum esset, & nulla nube maculatum. Verum cum propriis inspectis herbis, aquæ guttas, tanquam roris stillas, prope singulis

*Remark.*

An account of the like appearance is given by Dr. Langrish in the *Philosophical Transactions*, N° 369. The description of it agrees with this of Mr. Webb. The doctor observes, that its figure may be an hyperbola, parabola, or ellipsis, according to the angle of the intersection of the plane of the horizon with the cone of rays. That, which he saw, he took to be an hyperbola.

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singulis foliis inhærescere videret, quas e densiore nebula, quæ aerem paulo ante obscurâsse, formatas existimabat, mirari desit; cum enim explicationem supra traditam non ignoraret, judicabat continuo istas aquæ guttas arcus cœlestis speciem exhibere, qui apparuit, quoad guttæ herbarum foliis inhærerent. Probe etiam intelligebat, eum arcum videri debere inversum, ut profecto videbatur, quod istæ aquæ guttæ inferiorem tantum superficie coni axem aspectus ambientis partem occuparent.